CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory
An ISO 9001:2008 Certified Company
NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/BD/AP/W.No.08/CSR-02/873c/CEMENT/2018-19 Date: 02.02.2019

TEST REPORT ON CEMENT

*** Customer**	:	**Executive Engineer,** Byatarayanapura Division, BBMP, Bangalore.
*** Agency**	:	**Mr. A.Puttaraju,** No.48/5 Puttunilaya, Pipeline B cross, Bahubalinagar, Jalahalli, Banagalore-560013.
*** Name of Work**	:	Improvements of roads, drains and culverts at Muneshwara block and surroundings at Kodigehalli Ward No.08, BBMP, Bangalore.
*** Reference**	:	BBMP/EE/BTP/WO/211/2018-19 Date: 10.01.2019
*** Sample ID**	:	Cement
Sample Received on	:	01.02.2019
Period of Testing	:	01.02.2019 to 02.02.2019

The results of the tests conducted on the cement sample are as follows:

Sl. No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 8112-2013
1	Standard Consistency	IS-4031 (Part -4) 1988 (RA-2014)	28.50 %	-
2	a) Initial Setting Time	IS-4031 (Part -5) 1988 (RA-2014)	185 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5) 1988 (RA-2014)	370 Minutes	Not More than 600 Minutes
3	Soundness by Le Chartlier Method	IS-4031 (Part-3) 1988 (RA-2014)	1 mm	Not more than 10mm

*Information is furnished by the Customer/Representative.

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⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

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Job No.: CTCE/BBMP/BD/AP/W.No.08/CSR-02/873c/SAND-Gradation/2018-19 02.02.2019

TEST REPORT ON SIEVE ANALYSIS OF FINE AGGREGATES

*** Customer**	:	**Executive Engineer,** Byatarayanapura Division, BBMP, Bangalore.
*** Agency**	:	**Mr. A.Puttaraju,** No.48/5 Puttunilaya, Pipeline B cross, Bahubalinagar, Jalahalli, Banagalore-560013.
*** Name of Work**	:	Improvements of roads, drains and culverts at Muneshwara block and surroundings at Kodigehalli Ward No.08, BBMP, Bangalore.
*** Reference**	:	BBMP/EE/BTP/WO/211/2018-19 Date: 10.01.2019
*** Sample ID**	:	Fine Aggregates (Manufactured Sand)
Technical Reference	:	IS : 2386 (Part 1) - 1963 (RA-2011)
Sample Received On	:	01.02.2019
Date of Testing	:	02.02.2019

Total Wt. of Aggregates in gms = **1000**

IS Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2011)			
		Zone-I	Zone-II	Zone-III	Zone-IV
10	100	100	100	100	100
4.75	96.80	90-100	90-100	90-100	95-100
2.36	79.10	60-95	75-100	85-100	95-100
1.18	60.60	30-70	55-90	75-100	90-100
600 Micron	38.10	15-34	35-59	60-79	80-100
300 Micron	23.70	5-20	8-30	12-40	15-50
150 Micron	8.20	0-10	0-10	0-10	0-15

* Information is furnished by the Customer/Representative

Remarks : This sample is under Zone-II specific limits.

Note 1 :

For crushed stone sands, the permissible limit on 150-micron IS Sieve is increased to 20 percent. This does not affect the 5 percent allowance permitted in 4.3 of IS 383 applying to other sieve sizes.

Note 2 :

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Job No.: CTCE/BBMP/BD/AP/W.No.08/CSR-02/873c/AGG/GR/2018-19 02.02.2019

TEST REPORT ON SIEVE ANALYSIS OF COARSE AGGREGATES

* Customer	:	**Executive Engineer,** Byatarayanapura Division, BBMP, Bangalore.
* Agency	:	**Mr. A.Puttaraju,** No.48/5 Puttunilaya, Pipeline B cross, Bahubalinagar, Jalahalli, Banagalore-560013.
* Name of Work	:	Improvements of roads, drains and culverts at Muneshwara block and surroundings at Kodigehalli Ward No.08, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/211/2018-19 Date: 10.01.2019
* Sample ID	:	Coarse Aggregates (40mm)
Technical Reference	:	IS : 2386 (Part 1) -1963 (RA-2011)
Sample Received on	:	01.02.2019
Date of Testing	:	02.02.2019

Total Wt. of Aggregates in gms= **5000**

IS Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2011)	
		Graded	Single Sized
80	100	100	-
63	100	-	100
40	96.90	95-100	85-100
20	44.00	30-70	0-20
10	23.50	10-35	0-5
4.75	2.34	0-5	-

* Information is furnished by the Customer/Representative

Remarks : This sample is under graded specific limits.

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TEST REPORT ON SIEVE ANALYSIS OF COARSE AGGREGATES

* Customer	:	**Executive Engineer,** Byatarayanapura Division, BBMP, Bangalore.
* Agency	:	**Mr. A.Puttaraju,** No.48/5 Puttunilaya, Pipeline B cross, Bahubalinagar, Jalahalli, Banagalore-
* Name of Work	:	Improvements of roads, drains and culverts at Muneshwara block and surroundings at Kodigehalli Ward No.08, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/211/2018-19 Date: 10.01.2019
* Sample ID	:	Coarse Aggregates (20mm)
Technical Reference	:	IS : 2386 (Part 1) -1963(RA-2011)
Sample Received on	:	01.02.2019
Date of Testing	:	02.02.2019

Total Wt. of Aggregates in gms= **5000**

IS Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS :383-1970 (RA- 2011)	
		Graded	Single Sized
40	100	100	100
20	97.10	95-100	85-100
10	44.00	25-55	0-20
4.75	4.84	0-10	0-5

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Remarks : This sample is under Graded specific limits

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JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/BD/AP/W.No.08/Steel/2018-19 04.02.2019

TEST REPORT ON REINFORCEMENT STEEL

* Customer	:	**Executive Engineer,** Byatarayanapura Division, BBMP, Bangalore.
* Agency	:	**Mr. A.Puttaraju,** No.48/5 Puttunilaya, Pipeline B cross, Bahubalinagar, Jalahalli, Banagalore-560013.
* Name of work	:	Improvements of roads, drains and culverts at Muneshwara block and surroundings at Kodigehalli Ward No.08, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/211/2018-19 Date: 10.01.2019
* Samples ID	:	8 mm Bar
Technical Reference	:	IS: 1786-2008
Date of Testing	:	04.02.2019

Sl No	Nominal size (dia) (mm)	Mass per metre (Kg/mtr)	TENSILE STRENGTH			Bend Test	Rebend Test
			0.20% proof stress/Yield stress N/mm2	Tensile strength (Ultimate stress) N/mm2	Elongation percent gauge length		
1	8	0.39	515	556	13.1	O.K	O.K

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Job No.: CTCE/BBMP/BD/AP/W.No.08/Steel/2018-19 04.02.2019

TEST REPORT ON REINFORCEMENT STEEL

* Customer	:	**Executive Engineer,** Byatarayanapura Division, BBMP, Bangalore.
* Agency	:	**Mr. A.Puttaraju,** No.48/5 Puttunilaya, Pipeline B cross, Bahubalinagar, Jalahalli, Banagalore-560013.
* Name of work	:	Improvements of roads, drains and culverts at Muneshwara block and surroundings at Kodigehalli Ward No.08, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/211/2018-19 Date: 10.01.2019
* Samples ID	:	10 mm Bar
Technical Reference	:	IS: 1786-2008
Date of Testing	:	04.02.2019

Sl No	Nominal size (dia) (mm)	Mass per metre (Kg/mtr)	TENSILE STRENGTH			Bend Test	Rebend Test
			0.20% proof stress/Yield stress N/mm2	Tensile strength (Ultimate stress) N/mm2	Elongation percent gauge length		
1	10	0.62	522	564	13.35	O.K	O.K

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Job No.: CTCE/BBMP/BD/AP/W.No.08/CSR-02/873c/Cube/2018-19 14.03.2019

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	:	**Executive Engineer,** Byatarayanapura Division, BBMP, Bangalore.
* Agency	:	**Mr. A.Puttaraju,** No.48/5 Puttunilaya, Pipeline B cross, Bahubalinagar, Jalahalli, Banagalore-560013.
* Name of the work	:	Improvements of roads, drains and culverts at Muneshwara block and surroundings at Kodigehalli Ward No.08, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/211/2018-19 Date: 10.01.2019
* Sample ID	:	RCC Drain Concrete
Technical Reference	:	IS: 516-1959 (RA-2013)
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{20}
Compressive Strength as on	:	28^{th} day
Sample Received on	:	14.03.2019

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	14.02.2019	14.03.2019	8.265	516.8	22.97
2	14.02.2019	14.03.2019	8.162	492.5	21.89
3	14.02.2019	14.03.2019	8.452	526.5	23.40

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Job No.: CTCE/BBMP/BD/AP/W.No.08/CSR-02/873c/Cube/2018-19 14.03.2019

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	:	**Executive Engineer,** Byatarayanapura Division, BBMP, Bangalore.
* Agency	:	**Mr. A.Puttaraju,** No.48/5 Puttunilaya, Pipeline B cross, Bahubalinagar, Jalahalli, Banagalore-560013.
* Name of the work	:	Improvements of roads, drains and culverts at Muneshwara block and surroundings at Kodigehalli Ward No.08, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/211/2018-19 Date: 10.01.2019
* Sample ID	:	RCC Drain Concrete
Technical Reference	:	IS: 516-1959 (RA-2013)
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{20}
Compressive Strength as on	:	28^{th} day
Sample Received on	:	14.03.2019

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	14.02.2019	14.03.2019	8.185	476.2	21.16
2	14.02.2019	14.03.2019	8.362	528.5	23.49
3	14.02.2019	14.03.2019	8.248	510.7	22.70

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TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

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* Reference	:	BBMP/EE/BTP/WO/211/2018-19 Date: 10.01.2019
* Sample ID	:	RCC Drain Concrete
Technical Reference	:	IS: 516-1959 (RA-2013)
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{20}
Compressive Strength as on	:	28^{th} day
Sample Received on	:	14.03.2019

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	14.02.2019	14.03.2019	8.462	492.5	21.89
2	14.02.2019	14.03.2019	8.054	524.8	23.32
3	14.02.2019	14.03.2019	8.258	506.2	22.50

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* Reference	:	BBMP/EE/BTP/WO/211/2018-19 Date: 10.01.2019
* Sample ID	:	RCC Drain Concrete
Technical Reference	:	IS: 516-1959 (RA-2013)
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{20}
Compressive Strength as on	:	28^{th} day
Sample Received on	:	15.03.2019

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	15.02.2019	15.03.2019	8.265	516.2	22.94
2	15.02.2019	15.03.2019	8.415	506.2	22.50
3	15.02.2019	15.03.2019	8.062	475.2	21.12

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* Reference	:	BBMP/EE/BTP/WO/211/2018-19 Date: 10.01.2019
* Sample ID	:	RCC Drain Concrete
Technical Reference	:	IS: 516-1959 (RA-2013)
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{20}
Compressive Strength as on	:	28th day
Sample Received on	:	15.03.2019

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	15.02.2019	15.03.2019	8.204	488.2	21.70
2	15.02.2019	15.03.2019	8.162	532.5	23.67
3	15.02.2019	15.03.2019	8.485	521.5	23.18

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TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	:	**Executive Engineer,** Byatarayanapura Division, BBMP, Bangalore.
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Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{20}
Compressive Strength as on	:	28^{th} day
Sample Received on	:	15.03.2019

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	15.02.2019	15.03.2019	8.228	505.8	22.48
2	15.02.2019	15.03.2019	8.162	492.5	21.89
3	15.02.2019	15.03.2019	8.074	478.2	21.25

*Information is furnished by the Customer/Representative.

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Building & Highway Material Testing Laboratory

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JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/BD/AP/W.No.08/CSR-02/873c/Cube/2018-19 16.03.2019

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	:	**Executive Engineer,** Byatarayanapura Division, BBMP, Bangalore.
* Agency	:	**Mr. A.Puttaraju,** No.48/5 Puttunilaya, Pipeline B cross, Bahubalinagar, Jalahalli, Banagalore-560013.
* Name of the work	:	Improvements of roads, drains and culverts at Muneshwara block and surroundings at Kodigehalli Ward No.08, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/211/2018-19 Date: 10.01.2019
* Sample ID	:	RCC Drain Concrete
Technical Reference	:	IS: 516-1959 (RA-2013)
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{20}
Compressive Strength as on	:	28^{th} day
Sample Received on	:	16.03.2019

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	16.02.2019	16.03.2019	8.265	516.2	22.94
2	16.02.2019	16.03.2019	8.154	528.4	23.48
3	16.02.2019	16.03.2019	8.482	486.2	21.61

*Information is furnished by the Customer/Representative.

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Job No.: CTCE/BBMP/BD/AP/W.No.08/CSR-02/873c/Cube/2018-19 16.03.2019

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	:	**Executive Engineer,** Byatarayanapura Division, BBMP, Bangalore.
* Agency	:	**Mr. A.Puttaraju,** No.48/5 Puttunilaya, Pipeline B cross, Bahubalinagar, Jalahalli, Banagalore-560013.
* Name of the work	:	Improvements of roads, drains and culverts at Muneshwara block and surroundings at Kodigehalli Ward No.08, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/211/2018-19 Date: 10.01.2019
* Sample ID	:	RCC Drain Concrete
Technical Reference	:	IS: 516-1959 (RA-2013)
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{20}
Compressive Strength as on	:	28^{th} day
Sample Received on	:	16.03.2019

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	16.02.2019	16.03.2019	8.062	511.9	22.75
2	16.02.2019	16.03.2019	8.458	528.2	23.48
3	16.02.2019	16.03.2019	8.265	486.2	21.61

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Job No.: CTCE/BBMP/BD/AP/W.No.08/CSR-02/873c/Cube/2018-19 16.03.2019

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	:	**Executive Engineer,** Byatarayanapura Division, BBMP, Bangalore.
* Agency	:	**Mr. A.Puttaraju,** No.48/5 Puttunilaya, Pipeline B cross, Bahubalinagar, Jalahalli, Banagalore-560013.
* Name of the work	:	Improvements of roads, drains and culverts at Muneshwara block and surroundings at Kodigehalli Ward No.08, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/211/2018-19 Date: 10.01.2019
* Sample ID	:	RCC Drain Concrete
Technical Reference	:	IS: 516-1959 (RA-2013)
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{20}
Compressive Strength as on	:	28^{th} day
Sample Received on	:	16.03.2019

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	16.02.2019	16.03.2019	8.260	476.2	21.16
2	16.02.2019	16.03.2019	8.107	492.5	21.89
3	16.02.2019	16.03.2019	8.336	528.5	23.49

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Job No.: CTCE/BBMP/BD/AP/W.No.08/CSR-02/873c/Precast Slab/2018-19 25.02.2019

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CORE

*** Customer**	:	**Executive Engineer,** Byatarayanapura Division, BBMP, Bangalore.
*** Agency**	:	**Mr. A.Puttaraju,** No.48/5 Puttunilaya, Pipeline B cross, Bahubalinagar, Jalahalli, Banagalore-560013.
*** Name of work**	:	Improvements of roads, drains and culverts at Muneshwara block and surroundings at Kodigehalli Ward No.08, BBMP, Bangalore.
*** Reference**	:	BBMP/EE/BTP/WO/211/2018-19 Date: 10.01.2019
*** Sample ID**	:	Precast covering slab
*** Grade of Concrete**	:	M_{20}
Techinical Reference	:	IS:516-1959 (RA- 2013), SP-24:1983.
Sample Received on	:	23.02.2019
Date of Testing	:	25.02.2019

Sl. No	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50.00	70.00	0.405	2946.64	1.40	0.935	30.60	15.58	16.83	18.00	22.50
2	50.00	75.00	0.425	2886.01	1.50	0.946	33.50	17.06	18.43	17.43	21.79
3	50.00	75.00	0.415	2818.10	1.50	0.946	34.25	17.44	18.84	17.82	22.28

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